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ABSTRACT

A total of 103 preschool children of lower and middle socioeconomic status families were observed in three preschool programs during 15 standardized free play periods for the purpose of investigating preschool children's preferences for different types of traditionally used play materials. The influence of age, sex, and socioeconomic status (SES) on the children's preferences was also examined. Children of different racial and ethnic backgrounds were integrated into all groups. Seven categories of materials were defined and materials for each category were made available to the children each day of observation; materials included art materials, role play materials, blocks, sand, playdough, manipulatives, and wheeled vehicles. Teachers were asked to assume a supervisory, but nonparticipatory, role. A time sampling technique was used to gather the data. Findings indicated: (1) a preference for some kinds of structured materials over unstructured materials; (2) sex differences in preferences; (3) the preference of lower SES children for sand, playdough, wheeled vehicles, and role play materials; and (4) the preference of middle SES children for art materials and blocks. Overall, role play materials were used significantly more than any other material. Implications for early childhood education and for further research are pointed out. (RH)

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Age, Sex and Socioeconomic Background as Factors in Preschool Children's Preference for Play Materials

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Running Head: Age, Sex, SES and Preschoolers' Materials Preference

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Abstract

To investigage the current preference of preschool children among traditionally used play materials and the influence of age, sex and SES on them, 103 children of middle and lower socioeconomic backgrounds were observed in three preschool programs during 15 standardized "free play" periods. Seven categories of materials were defined and made available to the children each day: art materials, role play materials, blocks, sand, playdough, manipulatives and wheeled vehicles. The teachers were asked to assume a supervisory but non-participatory role. A time sampling technique was used. Findings indicated a preference for some kinds of structured materials over unstructured, the expected preferences according to the child's sex, the preference of lower SES children for sand, playdough, wheeled vehicles and role play materials and of middle SES children for art and blocks. Role play materials were used significantly more than any other material overall. Implications for early childhood education and for further research are given.

Age, Sex and Socioeconomic Background as Factors in Preschool Children's Preference for Play Materials

The concept of intervention in children's play for the purpose of enhancement of their development has become accepted by teachers and other professionals working with young children (Schwartzman, 1986 & Wachs, 1986) and there is a need to know more about the effect of specific toys, as components of the environment, on the kind of play which results with children of particular characteristics (Wachs, 1986). We know that availablity of play materials for children's play is related to mental development (Bradley, 1986 & Wachs, 1986) but availability alone is not enough. As children move out of infancy and become more mobile and inventive, and have a wider range of play choices within reach, we need to know what toys children prefer. If intervention is planned we also need to know what children will relate to which toys most easily. Further, it would be helpful to associate the demographic characteristics of children with choices of play materials. For example, when ordering equipment for a new group of children, knowledge of such characteristics will help a provider make more effective choices. This study attempts to shed some light on children's preferences for play things and the possible influence of age, sex and socio-economic background characteristics on their preferences.

In the literature on preference of preschool children in groups, the traditional and still commonly used method of calculating preferences can be traced back to the studies published in the early 1930's. The two most comprehensive studies of play materials of this time period, Van Alstyne (1932) and Parten (1933), both use a time sample method during a "free play" period of preschool groups, during which children selected their own toys. In this technique, described as scan sample by Altman (1974), the play material used was recorded at set intervals. Through use of this procedure the definition of

preference became the amount of time a material was used and this measure included initial attractiveness as well as holding power or duration of use of a material. This study uses this type of measure and definition of preference.

Taken together, the two early studies of play of fifty years ago (Van Alstyne, 1932 & Parten, 1933) found the overall preference of children in nursery school to be for unstructured materials of one kind or another, i.e., those which can be used in a variety of ways, such as blocks, sand or paint, rather than materials which are designed to be used in only one way, such as puzzles or a realistically designed truck. Housekeeping materials, which we feel tend to be more structured than unstructured (see McLoyd, 1983, for discussion of this quality in "dress-up" materials), were less popular in these early studies.

More recently, art and other activities with unstructured materials were again found to be most preferred by young children (Clark, Wyon & Richards, 1969; Rosenthal, 1973; Rubin, 1977, & Tizard, Philps & Plewis, 1976), while manipulative materials such as puzzles ranked low in terms of their preference.

The only study to report a substantial portion of free play time spent in non-play activities during the recorded observations was that by Clark, Wyon and Richards (1969) who reported that children spent 14% of the time this way.

From these studies it might be predicted that unstructured materials such as art materials, blocks, sand or clay would be preferred over manipulatives, such as puzzles and miniature realistic table toys.

With regard to age as a determinant of choice, Parten (1933) and Van Alstyne (1932) reported different toy preferences for each preschool level. These studies showed a definite preference among the materials by the 2- and 3-year age groups, but only in the Van Alstyne study was there a strong preference at the 4- and 5-year age level. In both studies at the 2-year age level, play

media which can be enjoyed purely for its sensorimotor quality, i.e., sand (Parten, 1933) and clay (Van Alstyne, 1932) were markedly more popular than the other materials. At 3-years of age, equipment for family, house and doll play was most frequently used in both studies. For the 4- and 5-year age levels the studies did not show such a commonality. In the Van Alstyne study (1932), there was a much higher use of blocks over other play materials. Parten's older age group played a little more at family, house and dolls but all other materials were almost equally popular.

Observers (Rubin, Maione & Hornung, 1976 & McLoyd, 1983) have noticed that the way children play changes with age. Rubin, et al. (1976) observed that, based on a scale they devised which combines Parten's classification of social participation with Piaget's classification by structure, functional play with its strong sensorimotor characteristic occurs most frequently in younger children (see Rubin, Fein & Vanderburg, 1983, p. 720). We would , therefore, expect that materials which can be exploited purely for their sensorimotor appeal, like sand and clay, might be chosen and used more frequently by 3-year-olds than by older children.

The proportion of pretend play (of which role play is one form), to all play, increases from 2 to 7-years (Rubin, Fein & Vandeberg, 1983, p. 720). This is consistent with increasing ability to communicate, understand symbolism and to share, which is developing at this time. We, therefore, predict that there will be an increase in the use of role play materials from age 3 to 4- and 4 to 5-years of age.

Since fine motor skills develop throughout the preschool years and are greater at age 5 than at age 3, we would expect that manipulative materials (those which depend on fine motor skills like put-together-take-apart table toys) would be used more by the oldest group. More success experienced by the

older children would tend to encourage play of greater duration with these materials.

Sex differences in choice of toys were noted very early in the studies of children. The studies of these differences have been reviewed by Maccoby and Jacklin (1974) and by Williams and Beeson (1982) and the differences have been found to be very consistent. Girls have been associated with doll play and art, while boys have been associated with wheeled vehicles and blocks. In studies where doll play was not separated from house play, no differences between boys and girls in preference for house play were found (Parten, 1935; Williams & Beeson, 1982). These four categories of toys are considered sex-stereotyped (Liss, 1981) and therefore, we predict use consistent with traditional preference patterns.

Since differences have been found in the kinds of play exhibited by children of lower and middle socioeconomic backgrounds (Rubin, et al., 1976), and by some investigators in the dramatic and pretend play of these two classes of children (see McLoyd, 1982 & Stern, 1982 for reviews) the question arises, do these two socioeconomic groups differ in choice and use of toys? We would expect so. Less exposure to materials for play gives children of low income homes less opportunity to develop play skills with materials, resulting in different play preferences. Therefore, they would tend to use more often than middle class children, materials like playdough, sand and wheel toys which lend themselves to the functional level of play (Fein & Stork, 1981, p. 276). Similarly, children of middle socioeconomic class homes may use art materials more because they have a home background in which writing tools are common. If this is so, it could be important information for providers of programs for economically disadvantaged children.

The literature on preference supplies us with neither consistent nor

accurate information on the influence of age, sex or socioeconomic class on preschoolers' choice of play materials. Previous studies do not describe or control for environmental variables. In these studies the influence of setting or materials cannot be distinguished from the influence of characteristics of the subjects. To clarify further the effect of the children themselves on the selection of materials, preferences need to be studied with a larger sample of children representative of those currently served in typical preschools and day care centers of the United States, and with more control over variables such as setting, teacher attitude towards play, and differentiation of subjects according to age, sex and SES. This is the purpose of the present study.

Method

Subjects

In this study, 103 children were observed during free play at three different preschool programs. Sixty children were observed in the spring of 1982, and 43 were observed the following fall by one of three trained observers. In two of the programs, the children came from lower socioeconomic homes, so classified by parental education level and income eligibility for Title XX federal funding to cover child care costs. The children enrolled in the third program were children of professionals and university students, and were classified as middle SES. Children of different racial and ethnic backgrounds were integrated in all groups. Table 1 shows that in the distribution of subjects there are more than twice as many lower SES children than middle, and that the difference is in the 4- and 5-year age groups. From Table 2, we can see that there are considerably more 4-year-olds than either 3- or 5-year-olds.

Insert Tables 1 and 2 about here

Procedure

The children were observed during 15 mornings in the spring and 15 mornings in the fall, while they were engaged in free play in their activity room. Each activity room was set up for an observation period with materials included from each of the following categories:

Role Play Materials: small replicas of people, houses and other real life objects and "props" from the housekeeping areas for cooking, dress-up and doll care, and other role play activities. Two programs (one lower and the middle SES program) also provided props for other role play situations such as office and hospital play.

Blocks: a standard set of unit blocks, supplemented in two programs with large hollow blocks.

Art Materials: graphic (paint, crayons, watermarking pens, etc.) and art construction materials (scissors, paste or collage materials, etc.). In all three programs, at least two activities were offered using art materials each day, and two (the middle SES and one lower SES program) also allowed free choice of other art materials from an open shelf.

Wheel Toys: large wooden wheel toys as well as smaller vehicles often used with other materials.

Manipulative Materials: a wide variety of small motor materials used on a table, with several common ones (e.g., Legos, Bristle Blocks, beads, puzzles) used at more than one program. Two programs (the middle SES and one of the lower SES programs) offered a shelf of supplemental manipulatives for free choice by the children.

Sand: a standard sand table containing sand and a variety of common sand toys (e.g., cups, shovels, buckets, spoons).

Playdough: homemade or commercial dough, at times replaced by clay or plasticene, or supplemented with rollers, cookie cutters and other playdough toys.

Overall, in each category, the number and kind of materials available to the children each day was comparable though not identical in the three centers. All observations were made indoors where gross motor activities were not usually made available.

Based on a pilot study, we found it necessary to add another category which we called Activity Without Materials (AWM). This category included activity with no materials, activity with the few materials other than those included in the seven categories, and nonplay behaviors (e.g., conflicts, eating snack, talking to teachers or other children, onlooker behavior, or wandering). Books, records, science and bulletin board displays were not recorded as materials, with our definition of play as an active behavior.

Each center had two teachers per group but in the middle SES groups, additional adults were usually in the room. Teachers in all three centers had a positive and encouraging attitude towards play. In the middle SES center, the teachers sometimes participated in the play, but were encouraged not to do so during the observation period. They more often kept to a supervisory role as did the teachers of the lower SES centers.

A child was recorded as using a material if he or she was in physical contact with material: holding, wearing, touching or manipulating the materials in some way. How the child used the material was not recorded. The interrater reliability was 90% in the spring and 98% in the fall. To determine reliability, in the spring and again in the fall, two observers made simultaneous observations and the percentage of the number of the same observations out of the total was computed.

Each day's observation was made in the morning and consisted of a 30-minute observation period divided into two-minute intervals. The material each child was using was recorded by key on a chart. The recorder looked from child to child randomly except not twice in succession at the children in the area just recorded. Thus, if a child was observed using the same toy for the 15 observations in the 30 minutes it was recorded as 15 uses. The entire number of observation intervals totaled 1350 (6 classes x 15 days x 15 intervals), with a total of 225 observations possible for each child.

Because of absences, or because of a child's leaving the room during the observation period (for other research, the bathroom or locker room, etc.) the number of observations per child varied. The number of observations ranged from 98 to 225 with a mean of 185 observations per child. In order to adjust for the disparity in number of observations among children, we computed a proportion score for each category of materials for each child. Since proportion scores yielded a severely positive skewed distribution, we used an arc sine transformation to normalize the distribution (Winer, 1971).

Results

The rankings of play materials based on frequency of use are identical for the raw data and the transformed data; the frequencies shown in Tables 3, 4, 5 and 6 have been transformed by the arc sine process. Although activity without materials is included in the total number of observations, it is not included in the rankings because it is not a play material; however, results regarding this category will be discussed along with results of the seven play material categories.

Insert Table 3 here

To establish the preference between categories, we took the number of observations for each category (after it had been transformed) and divided it by the total number of observations giving a mean relative frequency which was then ranked. Since a ranking of items is only meaningful if the difference between the items in ordinal series is significant, we calculated the significance of the difference of the means between each rank and the next by *t*-tests.

The ranking of play materials in Table 3 shows that for the group as a whole our predictions regarding preference of unstructured materials, art, sand, playdough and blocks, over structured materials, were not supported. Role-play materials which we regard as structured materials were the most popular. The significant difference of means between this category and the manipulative category, which was ranked second in use ($t(102) = 3.91$, $p < .001$) indicates the predominance of role play over other play material categories. The rankings of sand, art and playdough are not significantly different from each other, but there is a significant decline in popularity from these to blocks ($t(102) = 4.19$, $p < .001$) and between blocks and wheel toys ($t(102) = 2.73$, $p < .008$). We used $p < .05$ as the level of probability for significant difference throughout our analyses.

For the characteristics of age, sex and SES of our subjects, we used a one-way analysis of variance on each category of play materials to test for significant differences in selection of play materials, because there were not enough subjects in each cell to do a multivariate analysis of variance. The Newman-Keuls test was then used to make specific comparisons where three factors were compared and *t* tests where there were only two. Play materials are ranked by mean relative frequency of use for age (Table 4), sex (Table 5), and SES (Table 6), with significant differences indicated.

Insert Table 4 here

Age

There is a strong similarity in the frequency of use of the play materials at all ages (see Table 4) except that role play materials are used significantly more at 4 years than manipulatives, the second ranking material ($t(59) = 3.66$, $p < .001$). This is not true at other age levels. Blocks and wheel toys are at the lowest end of the rankings at all age levels but with the only significant difference coming between blocks and wheel toys at 3 years of age ($t(19) = 4.82$, $p < .001$), and between playdough and blocks at ages 4 and 5 ($t(59) = 2.89$, $p < .005$) and ($t(22) = 2.81$, $p < .01$), respectively.

A one-way analysis of variance showed a significant age effect on the use of blocks ($F(2, 102) = 4.3155$, $p < .02$). The Newman-Keuls analysis showed a significant difference between 3- and 4-year-olds and 3- and 5-year-olds at the $p < .05$ level. The 3-year olds showed significantly less use than the 4- or 5-year-olds.

Of all the materials, the only category showing significant age effect was blocks. Thus, all the predictions on age were rejected.

Insert Table 5 about here

Sex

Note on Table 5 that role play materials are top ranked for both boys and girls, but there is a significant difference shown between role play materials and the next highest material category for boys (sand) ($t(53) = 2.99$, $p < .004$) but not for girls. On down the list for boys, manipulatives are preferred over playdough ($t(53) = 2.76$, $p < .008$). Boys also prefer sand over art ($t(53) =$

4.20, $p < .001$) and by inference over blocks and wheel toys, also.

For girls, the rankings are in similar order to that of the boys except that art materials and sand are interchanged. For girls, art materials are preferred over sand ($t(48) = 2.45$, $p < .018$). Sand is preferred over blocks ($t(48) = 4.67$, $p < .001$) and blocks over wheel toys ($t(48) = 5.21$, $p < .001$).

As we compared boys to girls on each category, we found that there was a significant difference between boys' and girls' selection of art materials: girls were observed using art materials more often than boys ($F(1,102) = 26.99$, $p < .001$). Boys also used wheel toys ($F(1,102) = 30.44$, $p < .001$) and blocks ($F(1,102) = 4.09$, $p < .05$) more than girls. Thus the predictions on sex preference were supported. There were no other significant differences attributable to sex. Girls did not use role play materials more than boys, thus supporting the prediction on role play.

Insert Table 6 about here

SES

Children of the middle and lower SES groups made considerably different choices in play materials, but the differences between the rankings in each list are not significant except in three cases (see Table 6). In the lower SES group, role play materials got significantly greater use than all other materials, and wheel toys less than all the others except blocks. For middle SES children, art was preferred above other materials but not significantly more than role play materials, the next highest. Only wheel toys were used significantly less by these middle class children than other materials.

The comparison of middle to lower SES choices shows significantly greater frequency in selection of playdough, ($F(1,102) = 8.65$, $p < .004$), wheel toys ($F(1,102) = 37.41$, $p < .001$) and sand ($F(1,102) = 12.71$, $p < .001$) by lower SES

children. Therefore, our prediction that these materials would be chosen by lower SES children more often was supported. Also lower SES children selected role play materials significantly more frequently than did middle SES children ($F(1,102) = 6.29$, $p < .001$). This was not predicted.

The data also supported our second prediction: middle SES children chose art materials significantly more frequently than did lower SES children ($F(1,102) = 6.38$, $p < .04$). Middle SES children also chose blocks more often ($F(1,102) = 8.65$, $p < .01$).

As we expected, the lower and middle SES children observed in this study selected different play materials from each other in a free play setting: lower SES children chose playdough, sand, wheel toys and role play materials, more than middle class children, and middle SES children chose playdough, art materials and blocks more often than lower SES children.

During analysis of children's preference patterns in selection of play materials, it became apparent that activity without materials (AWM) occurred often in the programs observed. Overall, it was ranked second only to the role play materials category, and was observed significantly more frequently ($M = .7985$) than the next most frequently used category of materials, manipulatives ($M = .6821$) with a significant t value of the difference ($t(102) = 2.40$, $p < .018$).

The analysis of variance showed a significant age effect on AWM ($F(2.102) = 3.00$, $p < .05$). The Newman-Keuls procedure showed a significant difference between 3- and 5-year-olds. Another significant difference was found regarding SES level; middle SES children engaged in activity without materials significantly more often than did lower SES children ($F(1,102) = 44.14$, $p < .001$).

Discussion

In selecting toys for enhancement of play and purposeful adult intervention, this rough screening by category gives us several indications of preferences of play materials of preschool children that would be useful. With regard to the popularity of structured versus unstructured toys, our study suggests that unstructured toys are not as popular as found in earlier studies (Clark, Wyon & Richards, 1969; Parten, 1933; Rosenthal, 1973; Rubin, 1977; Tizard, Philps & Plewis, 1976 and Van Alstyne, 1932). Role play materials, which in our settings were more realistic than ambiguous, were the most popular category, significantly so, for the group overall, for 4-year-olds, boys and lower socioeconomic background children.

Manipulatives, another category which we considered structured since there is usually only a very limited way to manipulate the pieces, was second in popularity, though not significantly so, over unstructured art materials, sand and playdough. This tended to be true also for the subgroups. In the earlier studies quoted, manipulatives have more often trailed unstructured materials. The popularity of these unstructured categories in previous studies seems to suggest that structured materials are more favored now than formerly.

The characteristic of age does not seem to be a determinant of choice among the categories except for the block category which had greater use by the older children. Differences in kind of play from one age to another as reported in Rubin (1977, p. 19) appear to be a result of how the children of different ages used the materials rather than which materials were used. Further study of items within the categories may reveal age differences.

Sex had the predictable influence on choices of art for girls, and blocks and wheel toys for boys. Our finding of no significant difference between boys' and girls' use of role play materials is in accord with studies where role play

was not limited to doll/housekeeping play (Parten, 1933; Williams & Beeson, 1982). Although role play materials in our study were in the housekeeping area, these materials included pretend objects for office, baking, hospital play, etc., which are attractive to both boys and girls. Again, further investigation of gender preferences on items within the categories may reveal more real differences.

Socioeconomic background of the children was the most useful predictor of the children's preference for materials. It was a particularly interesting finding that there were significant differences between lower and middle SES children in the use of six out of seven categories of materials. Only with regard to manipulatives was there similarity in amount of use between the socioeconomic groups. We tend to explain the pattern of preference by the degree of exposure to play materials available to children in their home environments. If our sample is typical of children of lower income/lower education homes in preschools of today, based on the amount of use these categories would get, it would be important for preschool providers to be aware of these preferences when ordering equipment or planning activities (Table 6).

The significantly greater preference of lower socioeconomic group for role play materials does not necessarily indicate that children of this group role play more than middle class children but that they use pretend objects in the housekeeping corner a higher portion of the time. Role play materials can be used for functional activity such as setting and unsetting the table and not for actual role play at all. An explanation may also be found in the findings from Griffing (1980) and Smith and Dodsworth (1978) that children from this background depend more on objects for pretend in their role play than do middle class children.

Information from our study suggests that for a professional planning play

intervention to enhance development or teaching specific information through a concrete approach may find it more fruitful to plan to use puppets or other dramatic approaches for lower socioeconomic background children instead of drawing an illustration accompanying verbal instruction, telling stories, or using a group art project, which would be appropriate for middle class children. It would be interesting to know too, if training in the use of art materials for children of lower socioeconomic backgrounds would increase their spontaneous use of these materials to the level observed in middle class children.

Because the AWM category included so many different play and nonplay activities, our findings in this area must be interpreted with caution. Lower socioeconomic background children spent significantly less time in AWM; this could suggest differences between lower and middle class children themselves, but the factor of difference in program could also account for this difference. For example, snacks were served as a free choice activity during part of the observation period in the middle class group, which was recorded as AWM. The children in the lower class programs did not have this choice. Another program difference is that in the middle class group, there were more adults in addition to the two teachers supervising the children. This tended to make conversation (also recorded as AWM), more frequent. Such situations no doubt increased the proportion of time in which the middle class children did not engage themselves with materials. The AWM category also would include the portion of time the middle class children were role-playing without materials, e.g., when they role played with verbal or other signifiers instead of "props" which Stern (1982), pp. 126-7 finds more frequent with middle class children.

The finding that the AWM category was observed most often in 3-year-olds, and that its frequency decreased with age seems reasonable. As children mature, their attention span and involvement in activities increases, and as they spend

more time at each selected activity, the amount of time between activities would naturally decrease.

The high frequency of activity without materials suggests a need for further examination of activities within this category. Because this category included so many different activities, any conclusions based on this study would be premature. However, future studies may clarify this category by differentiating play activities without materials (e.g., role play without objects, singing, impromptu games, etc.) from non-play activities without materials (e.g., onlooker behavior, time-out, aimless wandering, conflicts, etc.). Should such research indicate a large amount of non-play activity in pre-school children, early childhood educators may need to consider expanding on the traditional categories of play materials in equipping child care centers.

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Table 1. Distribution of Subjects in Subgroups

	Lower SES (n = 72)			Middle SES (n = 31)		
	3 years	4 years	5 years	3 years	4 years	5 years
M	6	24	11	5	6	2
F	4	18	9	5	12	1

Table 2. Number and Mean Age of Subjects by Subgroups.

N = 103 Mean Age = 50 months

	Ages			Sex		SES	
	3	4	5	Boys	Girls	Lower	Middle
Number	20	60	23	54	49	72	31
Mean Age	41	53	62	51	53	53	49

Table 3. Play Material Ranked by Categories by Mean Relative Frequency of Use

(N = 103)

Category	M	Diff	sd
Role Play	.870		.363
		.188*	
Manipulatives	.682		.287
		.045	
Sand	.637		.289
		.014	
Art	.624		.333
		.041	
Playdough	.583		.316
		.194*	
Blocks	.389		.290
		.119*	
Wheel Toys	.270		.317

*Significant differences between means of categories with $p < .01$.

Table 4. Play Material Categories Ranked by Mean Relative Frequency of Use, by Age.

Age 3 (n = 20)				Age 4 (n = 60)				Age 5 (n = 23)			
Category	M	Diff	sd	Category	M	Diff	sd	Category	M	Diff	sd
Rplay	.738		.259	Rplay	.924		405	Rplay	.846		.297
		.073				.248*				.084	
Sand	.664		.307	Manipltvs	.675		.285	Manipltvs	.762		.312
		.006				.079				.039	
Pldough	.658		.293	Sand	.596		.342	Sand	.723		.255
		.029				-.001				.034	
Art	.629		.350	Art	.596		.291	Art	.689		.294
		.019				.055				.063	
Manipltvs	.610		.253	Pldough	.541		.315	Pldough	.626		.336
		.063				.174*				.319*	
Blocks	.547		.239	Blocks	.368		.293	Blocks	.308		.279
		.334*				.065				.072	
Whtoys	.213		.245	Whtoys	.303		.358	Whtoys	.235		.248

* Significant differences between means of categories with $p < .01$.

Data is transformed by arc sine process.

Table 5. Ranked Play Material Categories by Mean Relative Frequency of Use by Sex Showing Significant Differences of Means.

Males (n = 54)				Females (n = 49)			
Category	M	Diff	sd	Category	M	Diff	sd
Role Play	.885		.352	Role Play	.854		.377
		.198*				.071	
Sand	.687		.260	Art	.783		.360
		.003				.103	
Manipulatives	.684		.278	Manipulatives	.680		.299
		.135*				.059	
Playdough	.549		.317	Playdough	.621		.315
		.069				.038	
Art	.479		.226	Sand	.583		.312
		.035				.254*	
Blocks	.443		.282	Blocks	.329		.289
		.029				.218*	
Wheel Toys	.415		.355	Wheel Toys	.111		.156

*Significant differences between means of categories with $p < .01$.

Table 6. Ranked Play Material Categories by Mean Relative Frequency of use by SES.

SES 1 (lower) N = 72				SES 2 (middle) n = 31			
Category	X	diff	sd	Category	X	diff	sd
Role Play	.928		.333	Art	.747		.335
		.012				.009	
Manipulatives	.713		.274	Role Play	.737		.398
		.012				.127	
Sand	.700		.237	Manipulatives	.610		.308
		.059				.119	
Playdough	.641		.306	Sand	.491		.346
		.071				.012	
Art	.571		.320	Blocks	.479		.330
		.193*				.030	
Wheel Toys	.378		.321	Playdough	.448		.304
		.027				.428*	
Blocks	.351		.264	Wheel Toys	.021		.066

*Significant differences between means categories with $p < .01$.

NOTE: Data transformed by the arc sine process.